IN THE CLAIMS:

1. (Currently Amended) An article comprising an all-pass optical filter including

an input port ~~for receiving~~ configured to receive an input optical pulse having a regular repetition rate;

~~an output port;~~

~~a splitter/combiner;~~ and

~~one~~ a single feedback path, wherein the all-pass optical filter is configured to provide a phase response relative to a desired phase response and apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks, and a free spectral range of the filter, as defined by the a spacing between the delay peaks, is matched to the regular repetition rate of the input optical pulse.

2. (Currently Amended) The article ~~all-pass optical filter~~ of claim 1 in which the all-pass optical filter employs a single ~~one~~ feedback path ~~comprises~~ comprising a ring resonator and a heating element for heating a section of the ring resonator.

3. (Currently Amended) The article ~~all-pass optical filter~~ of claim 1 in which the all-pass optical filter is arranged in parallel with a Mach-Zehnder interferometer.

4. (Currently Amended) The article ~~all-pass optical filter~~ of claim 1 in which the free-spectral range of the all-pass optical filter is matched to the repetition rate of the pulse train by the free-spectral range being equal to the repetition rate.

5. (Currently Amended) An assembly for use in an optical communication system comprising an optical multiplexer/demultiplexer device including the article ~~all-pass optical filter~~ of claim 4.

6. (Currently Amended) The article ~~all-pass optical filter~~ of claim 1, in which the free-spectral range of the all-pass optical filter is matched to the repetition rate of the pulse train by the free-spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks.

7. (Currently Amended) An assembly for use in an optical communication system comprising a pulsed laser and the article ~~all-pass optical filter~~ of claim 6, in which the all-pass optical filter corrects linear chirp of the pulsed laser.

8. (Currently Amended) An optical communications system comprising the article ~~all-pass optical filter~~ of claim 1.

9. (Original) An optical communications system comprising the assembly of claim 5.

10. (Original) An optical communications system comprising the assembly of claim 7.

11. (Currently Amended) A method of generating a tunable delay for an optical signal with use of ~~a single-stage~~ an all-pass optical filter having a single feedback path wherein a pulse train of the optical signal has a regular repetition rate, the method comprising matching a spacing between frequency-dependent time delay peaks generated by the all-pass optical filter to the repetition rate of the pulse train.

12. (Previously Amended) The method of claim 11, in which a free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being equal to the repetition rate.

13.(Previously Amended) The method of claim 11, in which the a free-spectral range of the filter is matched to the repetition rate of the pulse train by the free-spectral range being offset from the repetition rate by a sufficiently small degree that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks.

14.(Currently Amended) A method for correcting linear chirp of a pulsed laser comprising the steps of:

providing an all-pass optical filter having a single feedback path and including an input port for receiving an input optical pulse having a regular repetition rate~~; an output port; a splitter/combiner; and one feedback path~~, wherein the all-pass optical filter is configured to provide a phase response relative to a desired phase response and apply a plurality of frequency-dependent

time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks, and

off-setting a free spectral range of the filter as defined by a spacing between the delay peaks from the regular repetition rate of the input optical pulse by a predetermined value such that each frequency of the pulse train falls within a bandwidth of one of the plurality of delay peaks, wherein the predetermined value is selected to substantially equalize the linear chirp of the pulsed laser.

15. (Currently Amended) A method for synchronizing control signals with transmission signals of an optical time-division multiplexer/demultiplexer system, the method comprising

providing an all-pass optical filter having a single feedback path and including an input port for receiving an input optical pulse having a regular repetition rate~~; an output port; a splitter/combiner; and one feedback path~~, wherein the all-pass optical filter is configured to apply a plurality of frequency-dependent time delay periods to the input optical pulse to define a time delay spectrum having a plurality of delay peaks,

configuring a free spectral range of the all-pass optical filter as defined by a spacing between the delay peaks to be equal to the regular repetition rate of the input optical pulse, and

applying the all-pass optical filter to the control signals to delay the control signals, thereby synchronizing the control signals with the transmission signals.